

**STRATEGY
RESEARCH
PROJECT**

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**BATTLEFIELD CONTRACTORS:
ASSESSING THE BENEFITS AND WEIGHING THE RISKS**

BY

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**Battlefield Contractors:
Assessing the Benefits and Weighing the Risks**

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ABSTRACT

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Since the earliest days of the U.S. Armed Forces, civilians in some form or fashion have assisted or facilitated our mission. A level of private sector involvement has varied based upon the tempo of operations, historical events and various reform initiatives. The 1997 Quadrennial Defense Review (QDR) and its spin off, the Department of Defense Revolution in Business Affairs (RBA) is a classic example of the door widening to further privatize military functions. This is all based upon the premise of fair, competitive outsourcing and finding private corporations that perform the same function but with more efficiency and less cost. The desired end state is an agile DOD infrastructure that has a reduced logistics foot print and a shared reliance with the commercial industry for innovation, technology insertion and systems support. One way of reducing the logistics footprint of the U. S. Army has been through the introduction of Theater Contractor Logistics Support (CLS). There is a growing reliance on CLS battlefield contractors, which accordingly can enhance or degrade military effectiveness. The underlying problems with this contractual arrangement are manifested within the details of the contracts and the laws that support them. The intent of this research will be to review this process over time and uncover the good and the bad of these business relationships. Furthermore, to examine the risks and benefits associated with them and prove that shedding some aspects of the logistics footprint to the private sector not only makes sense but also provides a gateway to transformation.

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PREFACE

This Strategic Research Paper is dedicated to Mess Management Specialist First Class Petty Officer Lonnie Arndt, U.S. Navy. Petty Officer Arndt taught me the true meaning of hard work onboard the USS Enterprise (CVN 65) from November 1976 to January 1977.

BATTLEFIELD CONTRACTORS: ASSESSING THE BENEFITS AND WEIGHING THE RISKS

...Where a state of equilibrium has set in, in which troops move back and forth for years in the same province, subsistence is likely to become the principal concern. In that case, the quarter-master-general becomes the supreme commander, and the conduct of war consists of organizing the wagon trains.

— Carl Von Clausewitz

A RETROSPECTIVE OF THE CONTRACTOR'S ROLE

Looking back throughout the years, it is remarkable to witness how the battlefield and the respective terrain that the armies must negotiate dictate the support strategies of leaders held responsible for support of the army. In particular, the logistician must consider how to best prepare, transport and facilitate the instruments of war. Today those tasks are shouldered by organizations that can perform them in the fastest possible ways and at the least cost to the U.S. Government. In some cases, those organizations are not inherently governmental and private contractors shoulder the burden.

According to the U. S. Army Combined Arms Support Command, there are three types of contractors who function in and around the defense services. They are the systems contractor, contingency contractor and external support contractor. The systems contractor provides support for specific systems throughout its life cycle during both peacetime and contingency operations worldwide. The contingency contractor provides a variety of theater specific services such as logistics, minor construction and services support in order to meet the needs of the deployed operational commander. The external support contractor provides assistance to deployed operational forces that is unique from either the systems or contingency arenas. An example of this service is commercial sealift or Civil Reserve Air Fleet (CRAF) services within the theater of operations.¹

This strategic research paper will consider all three types of contractors. However, I will focus on those situational risks and benefits that exist when civilians are introduced into a deployed area and forced to co-exist with armed forces in the field.

THE ORIGIN OF THEIR EXISTENCE

In his book "On War", Carl Von Clausewitz writes of armies living off local households or communities near the battlefield.² He understood as early as 1792 that standing armies could requisition from the local community and find adequate local support for a considerable number of days. In fact, Clausewitz believed that requisitioning in this manner was the most efficient method of supporting a standing force. While Clausewitz favored this logistics approach, he

emphasized that it is most effective when the army is operating on its home turf and tends to weaken as the army advances into areas not local to the force.

Civilian support of armies is not a new notion in ways of waging war and supporting warriors. The early roots of this support method date back prior to the Thirty Years War when supply of forces was established through a means of pillage and plunder. An early system of exchanging currency for provisions and the emergence of the contractor surfaced in the sixteenth century with the introduction of the *e'tapes program*.³ First appearing in Italy and Spain, troops on the march drew their rations from local markets or depots at designated areas along a predetermined route. By the mid-seventeenth century, France had established areas within their own borders where troops of varying sizes would stop for food. As the system developed, France ultimately established a financial decree paying the contractor well in advance of the troops arrival, thereby negating the need for the soldier to make payment with hard or soft currency. While these types of European systems emerged as an alternative to pillaging, foraging and raiding, America struggled to define the best logistics support for its own armed forces.

Throughout the entire Revolutionary War, logistics had failed miserably. There was some evidence that civilian or contractor support ventures were attempted as a means to solve this problem. However, in the end, historians account the lack of an adequate distribution and transportation system as the root cause of a problem that threatened the survival the Continental Army.⁴ The crux of this failure seemed to emanate from poor financial management of the Army's stock and provisions.

Frustrated and nearly bankrupt, the Continental Army in 1781 turned to contracting with private individuals for goods and services. Civilians were hired to perform the most traditional logistics functions: transportation, subsistence, military construction and medical support. While there were early problems with profiteering and collusion, they're seemed to be some evidence of improved conditions for the army. The quality of uniforms was better and troops stationed in the North were regularly re-supplied. However, it is inconclusive as to whether the contractors improved conditions or that the situation was enhanced due to some other economic strategy.⁵

Unfortunately, problems with logistics and contractors persisted through the War of 1812.⁶ Various logistics breakdowns such as lack of food and clothing were experienced along the northeast front when contractors failed to make deliveries.⁷ During this war, there was also question about the allegiance of the contractor and the conflict of interest that might result due to potential support of the enemy.

During the Civil War, the country's ability to sustain an army in the field improved due to better transportation, and a greater capability to provide raw materials and services. However, fraud and profiteering became problematic when the Army procured materials to outfit and sustain the troops. Contractors, and in some cases sub-contractors and middlemen, made it difficult to account for the proper expenditure of finances and the delivery of materials. In 1862, Congress sought to tighten contracting regulations to prevent fraud through new regulations. These additional regulations were met with resistance from the Army. The Army believed that existing contract law was sufficient and more governmental red tape posed a threat to adequately equip and re-supply the force.⁸ That same year, Secretary of War Stanton cracked down on fraud by ordering a suspension of all foreign procurements. He further directed a reconciliation of all existing government contracts. By the end of the Civil War, America reached a period where its military procurement program, with all of its faults, was enough to sustain the effort. However, the greatest achievement of this period seems to be the army's ability to move supplies along the desired routes and distribute materials in the field.

Logistical achievements of armies from the late 1800s to the early and mid-1900s were realized because of advances made during the industrial revolution and the evolution of transportation via rail and ocean. Even with the vast improvements of ocean shipping, problems occurred when merchant seamen attempted to move materials to an area of operations (AOR). During World War I, pressure on ocean shipping was extreme because of attacks on shipping vessels. Further exacerbating this problem was poor decision making for the priority of materials. The result was that soldiers often arrived in theater with the wrong material or no material at all.⁹

The secondary consequences were difficulties in supporting the army over great distances from its homeland and sustaining the mission within the theater of battle. An alternative to domestic material support via ocean shipping was the purchase or contracting for goods in the theater. This concept, promoted by General Jack Pershing, was based upon the need to mobilize local industry in and around the theater of operations for uniforms, food and construction materials.¹⁰

While in-theater contracting and industry contributed to the efforts during World War I, host nation support and multi-national logistics made the greatest positive impact. Supporting an army thousands of miles from its home and finding adequate supplies to sustain the fight became the preeminent logistics challenge for this war and all major wars that followed. These support mechanisms, combined with a strong industrial mobilization and contractor support carried the American Army through both World Wars, Korea and Vietnam where the war theater

contractor re-emerged as a major part of the base force and a front lines technical representative.¹¹

EARLY BENEFITS

There is little evidence that contracting support on the battlefield was pivotal in determining a winner or loser of these early wars. However, there was most likely some advantage to the army that could gain support from the local community and leverage unique skills that may or may not be available to the field commander within his ranks. From a tactical perspective, armies on the march were more maneuverable when not tied to large volumes of base supply.¹²

Local industry and alternate sources of material provides some benefit in overcoming the challenge of distance. Transportation continues to be an integral, if not key, enabler in waging war. When transportation fails to sustain the effort, leveraging local economies can compensate for materials that are found short in supply.¹³

STRATEGY

From a strategic context, the use of contractor support to advance the national military strategy has proliferated. This expansion is due to post Cold War resource reductions in the overall defense budget. According to the *Defense Almanac*, since 1991, the average total number of military personnel on active duty has been reduced by six hundred and sixty thousand personnel. Accordingly the federal civilian workforce has been downsized by three hundred and sixty thousand workers.¹⁴ These deep cuts motivated senior leadership to examine the total force and focus on the core competencies of the services. The scarcity of defense funding has driven leadership to shift some of the burden of support to the private sector and develop a smaller logistics footprint. These actions have been documented within the strategy of the Department of Defense (DOD).

Published in September 2001, the Quadrennial Defense Review (QDR) strategy seeks agility within the defense infrastructure as an objective end state.¹⁵ The QDR focuses on changing the culture by building alliances with defense suppliers and parsing functions to discriminate between core and non-core functions. When these functions are separated, planners can theoretically make informed decisions about resources that are directly or indirectly related to the mission. From this construct, the Department of Defense (DOD) intends to develop a supporting infrastructure that is more tightly focused on the war fighting mission.

The way in which the DOD seeks to achieve an agile infrastructure is through outsourcing and privatization initiatives. The aim is to leverage the best commercial practices of the private sector and to replace legacy logistics systems with the most efficient commercial providers in theater operations or weapons systems support within the United States. Conceptually, contracting with the most efficient provider instills competition, reduces the DOD organic investment and produces savings for re-investment.¹⁶

Unfortunately, the programs that drive the outsourcing portions of these strategies have not yielded the results one might expect of an organizational culture in the midst of wholesale change. While the Government Accounting Office (GAO) reported that the DOD had generated \$290 million in savings through privatization outsourcing competitions in fiscal year 1999, only 23% of these contracts were won by the private sector. This effort represents a decrease from an average 40% in 1995.¹⁷ Furthermore, the DOD is behind in target out source goals. For fiscal year 1999, only 12% of planned positions earmarked for competition were announced and completed.¹⁸

In addition to the challenge of conducting these competitions, there have been difficulties and debate in defining what functions are "core" or centrally linked to the war fighting mission.¹⁹ Many leaders disagree about that which is central to the defense mission and that which is not. There is also concern that savings projections represent short-term gains at the expense of long term economic and defense stability.²⁰

The central theme to the privatization strategy as portrayed in the QDR centers on changing the relationship between the DOD and commercial business. However, lessons of the past clearly point out the tenuous relationships forged between the warrior and the contractor. These new relationships will have to be built upon shared risk and sense of mission in order to fulfill the national security strategy of our nation and decisively win the wars of the future.

This tolerance for risk and the establishment of trust and security is a challenge for the DOD. History has shown that national security could be breached by contractors who work alongside the military. General Winfield Scott in 1815 held these concerns as he reflected the opinion of many of his field commanders:

"In time of war, contractors may betray an army; they are not confidential and responsible agents appointed by the government. For a bribe they may communicate intelligence to the enemy, or fail to make issues at some critical point and thus defeat the best views and hopes of the commander in chief."²¹

General Scott's concerns seem valid and very pertinent to current day leadership as they must balance risk with best commercial practices to realize new business relationships. The

agility they seek needs to be blended into a vision that supports the aims of all four of the services. To accomplish this and other objectives, the Joint Chiefs of Staff typically publish the Joint Vision every ten years as a strategic roadmap.

Joint Vision 2020 identifies four areas that provide focus and direction to support of tomorrow's wars. They are Dominant Maneuver, Precision Engagement, Full Dimensional Protection and Focused Logistics. Focused Logistics is essentially a fusion of technologies that provides the capability to realize flexibility, mobility, technological integration, compatibility, and precision in support of the end user. Conceptually, the focused logistics construct is to be gained by working in concert with the private sector in seeking ways to leverage the best business practices, economies and systems available.²²

The past ten years has brought little significant change in the strategic direction for outsourcing and privatization. There are simply more contractors and the numbers are increasing as we attempt to transform the services. The continued reduction of financial resources and personnel has created an environment in which the DOD cannot afford to keep programming redundant and inefficient services for the war fighter.

Joint Vision 2020 and the QDR are comprehensive conceptual documents that are sufficient for guiding leadership to the desired end state. The DOD does not need more strategy to state what it seemingly must do to compensate for the reductions of the past ten years. In the short term, the DOD needs to seek ways to accelerate the competitive outsourcing process. A revision to the current competition methodology (OMB A-76) might be in order or potentially hiring more staff to assist DOD activities in clearing the backlog of these studies under the current process. Streamlining these processes could produce faster results and accelerate savings while simultaneously shedding DOD of non-core functions.

DOCTRINE

The Army Training and Doctrine Command (TRADOC) has not ignored the challenge associated with integrating contractors in the theater of operations. Consequently, a great deal of professional writing has taken place to define the role of the contractor, their relationship to combatant commanders and their mission of systems and support augmentation.²³ TRADOC has published two Army field manuals addressing contractors on the battlefield. Field Manual 100-10-2 *Contracting Support on the Battlefield* is capstone doctrine for acquiring contractor support and focuses on acquisition. Field Manual 100-21 *Contractors on the Battlefield* is the first Army capstone publication that deals with the operational aspects of managing contractors in support of the Army.

The latest document, currently in final draft, is Field Manual 3-100.21, "Contractors on the Battlefield." The intent of this manual is to present a guide for commanders and their staffs at all echelons and others tasked to plan for and use contractors in the area of operations.²⁴ Additionally, the manual provides basic guidance for contracting professionals and contractors to enable good planning and management of contractor personnel. The draft manual makes it clear that contractors are, in the Army's opinion, a force multiplier and a benefit:

"Contractor support is an effective force-multiplier and can be an invaluable tool for supporting the military on the battlefield. Whether it bridges the gap prior to the arrival of military support resources, when host nation support is not available, or augments existing support capabilities, contractor support is an additional option for supporting operations."²⁵

Field Manual 3-100.21 blends together many of the issues previously written about this subject by both professional author and military student. The text is presented in a way that anyone can understand its concepts and principles without having previous knowledge of the subject. Its plain and direct approach to the subject sets it aside from all other previous publications and makes it very user friendly. This will make the final document very useful and it might become the primary source document for this area of study. The other strengths of this draft field manual are its comprehensive approach to the subject. The contents of this manual address important aspects of this support method by addressing basic contracting, contractual relationships, planning for operations, risk analysis, deployment/re-deployment, management, support and force protection.²⁶

While I thought this draft manual to be very useful, others might have problems with it in terms of depth of subject. One area that I found particularly weak was "risk assessment". The entire subject of contractors on the battlefield is a risky venture and while it is useful to identify potential pitfalls, the commanders need more structure in assessing contractor risk. It might be useful to include a risk assessment model within the manual. An entire section dedicated to lessons learned from past missions to give the future commander a taste for the impacts associated with different situations involving contractors might also be useful.

From the joint perspective, there is no evidence that the services or Joint Forces Command have begun to draft a joint publication to address this issue. Each seems to be approaching the matter separately.²⁷ U. S. Army Field Manual 100-10-02, *Contractor Support on the Battlefield* maintains that there is a benefit derived through the consolidation of contractors. The economy of consolidating contracting requirements theoretically negates or minimizes competition for limited resources between the four services or coalition partners.²⁸

It seems particularly important that the expanding role of contractors on the battlefield is being acknowledged by TRADOC and that another comprehensive resource is almost completed. After field manual FM 3-100.21 is finalized, there will be no need for additional Army doctrine except revisions and updates to the existing guidance. The next step might very well be guidance that incorporates the issues of dealing with other services and balancing these issues within the joint arena. Until then, the existing doctrinal resources should provide adequate guidance on how to proceed given the challenges and dilemmas faced by leadership.

THE CONTRACTUAL RELATIONSHIP

Introducing contractors to the battlefield is a management challenge that will likely have to be solved through risk analysis, wise judgment and knowledge of the law. During the Mexican War of 1846-48, Quartermaster General Thomas Jesup complained that contractors were difficult to control and generally resistant to discipline while on the march or in camp.²⁹ He complained that he had no jurisdiction over their performance and frequently experienced poor reliability in the field. These same problems were recently experienced in Kosovo, where military authorities tried to issue orders and drive contractor personnel like their own troops.³⁰ This ultimately ended in confusion and poor field support until the appropriate contracting authority could resolve the situation.

While General Jesup might have believed he had a command and control problem, what he learned in the end was that he had little of either concerning his contractor's actions. Contractors then as they are today are not under the command of the military. Their commander so to speak, is their supervisor who has the sole responsibility to control their actions while on the job.

Documentation published by the Logistics Management Institute (LMI) echo Jesup's early problem. LMI reports that military personnel do lack a clear command and control over contractors and that non-logistics military personnel at times have difficulty determining who has management control over contractors.³¹ Other than the contracting officer or their specific representative, military commanders have little authority to drive the day-to-day work of a supporting contractor. The contract's statement of work (SOW), in addition to the terms and conditions of the contract, dictate whom, when and where work occurs and to what levels that effort is performed.

While some military field commanders lack the legal authority to drive and amend contractor performance, there is a contract administration infrastructure within the Army to

validate performance and change the scope of work when needed. This administrative support method works well when co-located with the supported command in the theater of operations and the specific chains of command are understood. However support can suffer when contract administration and oversight is distanced from the theater of operation. This process can also be impeded when there is not a clear understanding as to who has legal contractual authority to modify performance expectations.³² During the NATO Peacekeeping operation in Kosovo, managing the logistics support contract and understanding the “cost plus” contracting vehicle proved critical and was documented in the following quote:

“It is critical that the Administrative Contracting Officers communicate directly and frequently with the Task Force Commander so that the contractual capabilities and the contracting officers authorities are clearly understood by the maneuver force. With so many participants, there’s plenty of room for mis-understanding especially in the harried days when a deployment is fresh.”³³

The above quote reinforces the importance of building good working relationships with the right leaders and designing a contracting staff that is familiar with the type of contracts used to support the command. It also reinforces the importance of good planning and communication.

The notion of control and contract enforcement is important from a management standpoint but what is of greater importance is contractor reliability when hostilities erupt. In 1998, the DOD Inspector General (IG) released a report that revealed the following about contractors are present during hostilities:

- There is no capability that exists to ensure continued contractor support for emergency essential services during mobilization or hostilities.
- There is no legal basis to compel contractors to perform.
- There are no means to enforce contractual terms.
- There is no central oversight of contractors for emergency essential services.³⁴

Based on the above findings, the operational commander has no legal rights to demand contractor performance during hostilities and the options available are limited. The 1998 DOD IG report went on to recommend that commanders identify war-stoppers and only assign military personnel to perform such functions. Furthermore, to seek alternative sources in the case of contractor default or just plainly accept all risk regardless of circumstance.³⁵

All DOD instructions and directives provided in response to the IG stressed that commanders should encourage contractors to stay in theater and continue the operation of emergency essential tasks. However, this is without any legal merit and encouraging support when lives are at risk is a troubling solution to a very critical problem.³⁶

In the end, the commander must weigh the risks, use good judgment and understand the law to determine the best course of action. Managing day-to-day requirements while performing peacekeeping operations is a challenging management task. Moreover, when the bullets fly or gas is released all bets are off. Whether or not a contractor would actually “bug out” is a troubling issue to consider.³⁷ It is certainly a realistic scenario especially during the threat of biological or chemical warfare when adequate protective measures are either sparse or not available.

The future battlefield environment in which both soldier and civilian find themselves will most likely dictate the behavioral traits of future contractors on the battlefield. This leads us again to considering the changing face of the battlefield and understanding that the templates used in Vietnam, Saudi Arabia, Bosnia or even Afghanistan will not be an adequate solution for tomorrow's conflicts. Understanding just where the front lines of the battle are drawn and who can technically, legally and ethically traverse them could someday dictate the winner and losers of future war and whether or not the supporting participants are wearing uniforms.

LEGAL ACCOUNTABILITY

The laws of armed conflict defined within the Laws of the Hague (1907) establish the legal grounds for the presence of civilian non-combatants in support of an armed force. Furthermore this provision was upheld as part of the Articles and Protocols of the Geneva Convention (1949).³⁸ These laws essentially allow civilians to work in support of the Army as non-combatants as long as they are unarmed. The basis of their non-combatant status from the Geneva Convention follows:

- Neither category of civilian (contractor or DOD civilian) is subject to the commander's internal disciplinary system (i.e. Uniform Code of Military Justice).
- Neither is trained to conduct operations in compliance with the law of armed conflict.
- The contractor is not subordinate to the field commander.

While these attributes seem plausible, modern day warfare and our reliance on technology to fight wars might have very well skewed the spirit of the second provision above. It certainly stands to reason that high tech systems contractors at times walk the line regarding their specific strategic and operational training in preparation for and during armed conflict.

What is more troubling is the legal status of foreign employees hired by the contractor to perform under the terms of the contract. Foreigners working under contract during times of armed conflict when a declaration of war has not been declared have no cover under the

provisions of the Geneva Convention. If captured, they risk achieving the status as a war criminal or spy.

Laws that focus on personal behavior also apply to civilian contractors deployed to the region. In the past, civilians serving in support of the military have committed serious crimes and escaped justice. As Wayne Specht reported in *Stars and Stripes*, key cases in military justice document this problem exposing the legal loophole:

"U.S. Lawyers convicted a Civil War era paymaster for tampering with the ledgers and two civilians for desertion during World War I. As recently as Vietnam, a civilian was court martialed by the military in an isolated case of justice misapplied. An Army contractor was convicted of conspiring to steal 36,000 batteries. He was freed after a military appeals court ruled Vietnam did not count as a war."³⁹

Until recently, deployed civilians who committed offenses during wartime were subject to Courts Martial by military authorities. However, jurisdiction issues and the declaration of war have provided loopholes for accused offenders to appeal charges and escape justice. In response to these problems, Congress passed the Military Extraterritorial Jurisdiction Act in November of 2000. This law provides federal jurisdiction for offenses committed overseas by U.S. civilians and negates the loopholes experienced in prior years.⁴⁰

Now that law expanding federal jurisdiction has been passed, officials are struggling with the proper way to implement the law itself. The Defense Department has not yet established a regulation to cover the procedural aspects of conducting arrests, investigations and assuring the constitutional rights of the accused. Until these procedures are established, neither the Uniform Code of Military Justice or the federal statutes will have any clear way on how to proceed in investigating and following through on to conviction in support of law enforcement.

Despite all of the management, control and legal challenges associated with contractors on the battlefield, there have been successful programs that have reaped positive results. One such program is the Army Logistics Civilian Augmentation Program (LOGCAP) whose roots date back to Vietnam and stands as one of the most ambitious theater support efforts to date.

LOGISTICS CIVILIAN AUGMENTATION PROGRAM (LOGCAP)

The Logistics Civilian Augmentation Program (LOGCAP) is the Army's program for providing contingency contracting responsibilities and increases the likelihood that logistics contractor support will be present when and where it is needed to support contingency forces. The program is designed to support all types of military actions that include peacekeeping and battlefield scenarios.

The success of this program provides evidence that contractors are an acceptable substitute for active duty Army personnel and is a good management decision when properly

applied. LOGCAP uses global corporate resources to augment combat support and combat service support personnel during contingency operations. However, the use and application of this resource has at times been a challenge to the combatant commander and the decision to use LOGCAP contractors cannot be applied equally.

The military, political and economic conditions dictate what the proper support methodology will be to use CLS to sustain an army in the field. These same attributes are used as the decision logic to determine whether or not contingency contractors such as LOGCAP are a viable option for a specific mission.⁴¹

In a recent visit to the Army War College, Major General B. D. Bates, Army Forces Korea, made the following observations regarding LOGCAP:

- LOGCAP competes for the same critical strategic airlift as conventional forces, which can be problematic.
- LOGCAP personnel rely on the Army for security.
- Host nation support and status of forces agreements can dictate the effectiveness of their mission by denying access to indigenous workers.
- Local theater markets do not always support the requirements of the contractor (i.e. construction materials).
- During the past 25 years, wars and military operations other than war (MOOTW) have been conducted in un-opposed theaters.⁴²

General Bates' comments are in some cases debatable, especially the issue of strategic lift. The major army command in charge of LOGCAP has the flexibility to finance contractor lift via foreign flag carriers thus negating the competition for organic strategic lift assets.⁴³ General Bates is correct in pointing out the need for force protection. Providing force protection for contractors is an additional consideration for the combatant commander. Keeping contractors unarmed and reliant upon the Army for security preserves their rights as non-combatants under the Geneva Convention.

Host nation support of the LOGCAP program is a key area of consideration before the decision is ever made to inject the contractor into the mission. General Bates is correct in that host nations do not always support the aims of the contractor. During Operation Joint Endeavor in Bosnia, the country of Hungary objected to allowing contractor shelter under the status of forces agreement and further protested the contractors aims to import labor from other countries. Both of these issues were resolved after the U.S. Government assisted with negotiations.⁴⁴

The aforementioned challenges have not significantly hindered the expansion of this program and the benefits it brings to the deployed commander. Planning for issues like force protection, host nation and local market support are now being addressed and institutionalized in the planning phases where LOGCAP services will be utilized. Funding is another area that needs to be considered when planning for this requirement.

Flexibility is key to leveraging this resource because the contractor generally knows little about the area of operation (AO) that can be predicted in the conditions and estimates of the contract. This practice of soft estimating can lead to escalating costs throughout the period of performance. A 1996 GAO briefing report indicated that, LOGCAP costs in Bosnia exceeded the original \$3 billion dollar estimate by \$451 million dollars.⁴⁵ This was primarily due to the rapid change in logistics requirements, expansion of base camps and poor environmental conditions. Another contributing factor could be the nature of the cost plus award fee type contract and the flexibility it provides as a factor in driving actual costs over the original estimates.

LOGCAP is a program that continues to grow and is being leveraged throughout multiple areas of operation. LOGCAP deployments have successfully taken place in Somalia, Haiti, Bosnia, Southwest Asia and Italy. General Bates' comments revealed that the next theater for LOGCAP is Korea, which poses more opportunity for expanded support but at a considerable security risk due to the tensions between north and south. The issue of security and risk permeates the subject of battlefield contracting. Understanding the risk will hopefully provide clarity in the decision-making process and aid strategic managers to clearly understand the way ahead for LOGCAP.

RISK

Some believe that there is little risk in the use of contingency contractor logisticians and service support personnel in the rear areas of operation.⁴⁶ There are also notions that we operate in a risk averse military that has little patience for mistake or failure. If that is true, then defining what is acceptable risk and understanding the tolerance and mitigation strategies we can apply is important. While we have already considered the background, contractual relationship and the legal ramifications of contractors in the battlefield, what is of further study are the vulnerable aspects of this relationship.

SYSTEMS CONTRACTORS: RISK

The greatest risk to the forces operating in the area of operation is loss of life due to an over powering enemy or lack of adequate security around a perimeter. Contributing factors

could be a breakdown of service or support that ultimately leads to a degraded state of readiness. This vulnerability can exist when too much reliance is placed on a single source of systems support to maintain and trouble-shoot weapons systems in the field. One example of this would be total maintenance support for given weapons system such as the U. S. Air Force's F117 fighter airplane or total logistics support of the U.S. Navy's Close In Weapons System (CIWS). This risk is also prevalent in the Direct Vendor Support arrangements with Lockheed Martin for the Army's Apache helicopter.

The use of CLS support for legacy weapons systems is more of a risk than for newly procured weapons. Aging weapons platforms place heavy reliance on organic support from the military and the federal civilian work force. Since the size of the armed forces and federal work force has been reduced, so has a great deal of the legacy equipment expertise. Analysts currently estimate that from 1991 to 2003, almost forty percent of the DOD maintenance depots and fifty-five percent of the supporting organic personnel will be reduced from the DOD.⁴⁷ In some cases, the only source of support for legacy platforms is through private contractors who hire personnel after they depart the DOD due to retirement or through force reduction initiatives.

Large contractors like Lockheed Martin have been known to bid and win large support contracts only to sub-contract the actual performance to another activity. The issue of sub-contracting can increase the odds that support problems will occur when sub-contractors (Subs) fail to perform as specified by the contract and under the guidance of the prime contractor. This contracting scenario can increase risk if poor contracts are written and contracting administration and oversight is weak. Commanders need to clearly understand the support challenge for legacy platforms and the contracting vehicle in place before decisions are made to transport and engage them in the battlefield. Requirements need to be clearly understood so there are no surprises when the commander needs to engage.

Technological advancements in developing weapon systems and information systems have increased the need for highly skilled analysts to support systems in the field.⁴⁸ While the DOD has attempted to keep pace with technology, it is evident that the rate of change and economics has forced us to become highly civilianized in the areas of systems maintenance and support. These systems require skilled labor that is not necessarily maintained by the military or its organic civilian workforce. As an example, the Navy and Marine Corps are currently developing their own Intranet that will be totally supported and maintained by EDS corporation.

During Operation Desert Storm, there were 76 U.S. contractors and 22 major foreign contractors supporting the war.⁴⁹ We must tolerate these conditions for both legacy and new

procurement initiatives to ensure the availability of these systems, but work to reduce the reliance systems place on maintenance and support.

Reducing the occurrences where the systems contractor is vulnerable or in a position to fight or flee is the direction that systems developer and programmers need to drive. A support strategy to mitigate these occurrences would be to develop systems that require little traditional support and to develop maintenance strategies that repair outside the theater of operation. This thinking is reflected in the writing of Yves Fontaine's "Strategic Logistics for Intervention Forces" where he states:

"Prior to a genuine logistics revolution, the US Army will undergo a deeper technological revolution, one that will reduce requirements for "industrial age" volumes of fuel, ammunition and food. In other words, an Army After Next will need systems that require very little or no logistics tail in contrast to traditional systems that require extensive logistics support. The result will be a less complex logistics system, a small logistics tail and smaller, lethal and supportable contingency force when we deploy them."⁵⁰

Fontaine's futuristic vision of systems without intense logistics plays well into mitigating the risk of having contractors anywhere near hostilities or the battlefield in general. Following this idea, future systems will require minimal support in the field. There could very well be more contractors involved and probably should be, but from a greater distance, miles and miles from the battlefield.

Supporting legacy weapons systems that require intense support will continue to challenge the services and its contractors. Where research and development could solve support issues for future systems, the services will still have to live with a portion of its legacy force. To mitigate this risk, contracting officers and program managers alike will have to use creativity, risk management and vision to achieve adequate support until these systems are no longer relevant.

The commander's knowledge of the law, contracts and the situation at hand will help in determining the success of mission accomplishment in future theaters. Additionally, the combatant commander needs to understand the potential pitfalls and risks associated with contractors tasked to provide combat service support (CSS) functions from a contingency aspect.

EXTERNAL SUPPORT/CONTINGENCY CONTRACTORS: RISK

The greatest risk from a contingency standpoint is the abandonment of support due to contractual or lawful ramifications. This type of failure was realized in 1809 during peacetime when collusion and dishonesty resulted in death and desertion:

"The restrictive policies of a new Secretary of War, William Eustis and the collusion with dishonest contractors of a commander, Brigadier General James Wilkinson, combined to produce what historian Russell Weigley has called "one of the Army's worst peacetime disasters of any era", the virtual abandonment of some 2,026, enlisted men in a swampy camp at Terre aux Bouefs, south of New Orleans, where the unhealthy climate, poor sanitation, and lack of shelter and clean water, clothing and wholesome rations resulted in 166 desertions and more than 830 deaths from February 1809 to January 1810."⁵¹

This story depicts the worst case scenario for planners who intend to leverage CLS as a force multiplier during contingency operations. The failures of Eustis and Wilkinson have yet to be replicated in current day because of the DOD's robust acquisition and contracting corps. Present day concerns and opinion dwell on friction that naturally occurs between the military commander and civilian contractor. While this friction poses a management and tactical challenge to the field commander, the current LOGCAP CLS initiative driven by the Army Material Command (AMC) has proven successful and overall a low risk venture.

In addition to the legal challenges and opinions of General Bates covered earlier in this paper, the following issues have contributed to creating friction in the battlefield environment:

- The difference of mission commitment (Army) vs. profit goals (contractor).⁵²
- The contractor's reliance on indigenous workers and the potential security risk that follows.
- The potential unreliability of the contractor work force in times of heightened security scenarios resulting in poor support.
- The contractors lack of mobility and agility in moving their operations once they are established.

To mitigate these risks, commanders should consider the lessons learned from previous LOGCAP events, while focusing on the details and definition of the scope of work and the funding available to achieve the expected performance. The following lessons can be applied toward making contingency contracting more effective in support of the force during these operations:⁵³

- Establish relationships early between the joint task force commander, contracting officials and contractor.
- Train all agency and organizational personnel to gain an understanding of their roles, responsibilities and authorities in the administration of the contract.⁵⁴
- Train the leaders who will use the CLS service so that they understand what services can be provided and the costs involved in changing them. Understand limitations and plan accordingly.

- Train and treat the contractor as an integral member of the deploying force and get him into the region early.
- Ensure proper funding is in place to cover the length of the operation. Avoid incremental tasking and funding scenarios.⁵⁵

BENEFITS

One cannot dispute the benefits contractors bring to supporting troops and the mission at hand. LOGCAP and other contractor support programs have evolved over the past five years and the need for logistics providers has kept pace and in some cases out run the evolution of these programs. There is a role for the contractor, especially when the tasks are so complex that it is not economically feasible for the service to maintain capability within the force.

It is debatable that the benefits of CLS outweigh the risks in all cases. However, it is unlikely that CLS for contingency operations and the involvement of systems contractors will diminish any time soon. In fact, history has shown that both scenarios have proliferated.⁵⁶ As a result of these deployments, much has been learned about benefits that can be attributed to four specific areas: force enhancement, planning, cost and foreign relations.

FORCE ENHANCEMENT

Leveraging CLS provides an advantage to the force commander in several ways. This type of resource will reduce the requirement for mobilizing the National Guard or the Army Reserves and provide increased support in an area that might be capped by congressionally mandated force limits.⁵⁷ Furthermore, leveraging systems contractors can provide a wider range of capabilities and skilled technical manpower where there might possibly not be any existing expertise. Additionally, CLS contractors allow the military to focus on combat action and other critical tasking while reducing the size of their own footprint.⁵⁸

PLANNING

From a planning perspective, the Army can improve its peacetime training posture for contingency operations through these relationships. Including CLS contractors in the Army's different exercises builds trust and relationships before actual contingency operations are undertaken. This is possible because the length of the current contract for contractor systems support and the LOGCAP provider extends over a five-year period.

COST

While it is at times difficult to prove cost savings, the Logistics Management Institute reported that the LOGCAP CLS contractors saved the taxpayers and the Army in Bosnia, \$176 million dollars. Furthermore, it was determined that the contractor typically obtained labor and supplies at prices more favorable than the private sector or the U.S. Government.⁵⁹

FOREIGN RELATIONS

Hiring local nationals via the CLS contractor provides a positive spin on the program and invigorates local economies. Additionally, having locals on the contractor staff gives the impression that peacekeeping and other support mission are taking place vice the negative perception of a U.S. military occupation force.⁶⁰

CONCLUSION

Logistics Support in the form of contingency, systems or external contractors has sustained the Army throughout the past and more directly during the past twelve years. While there is always risk involved, good planning and decision-making enabled the Army to leverage an effective alternative resource. It is the Army's contractor support programs that have supported the aims of the current DOD and joint strategies in achieving agility and building a bridge to private sector capabilities. It is also encouraging that these contractor support methods are being institutionalized in Army doctrinal publications. However, work remains to be done in documenting Joint Force doctrine concerning contractors on the battlefield.

Contract support has proven to be both cost effective and enhancing to the Army's mission. This could not have been possible without some amount of keen analytical rigor and forward thinking by the Army's Logistics, Engineering, Legal and Acquisition Corps. There are challenges to consider and this form of support is not the answer for all situations. However, embracing these methods allowed the Army to reduce its support infrastructure and realize early what the future might holds for its service support ranks while leveraging contractors on the battlefield.

WORD COUNT= 7,355

END NOTES

¹ Joe A. Fortner, "Information Paper on Contractors on the Battlefield," 11 February 1999, available from http://cascom.army.mil/rock_drill/c_contractors_on_the_battlefield; Internet; accessed on 1 November 2001.

² Carl Von Clausewitz, ON WAR (Princeton, NJ: Doubleday, 1976), 332.

³ John A. Lynn, "The History of Logistics and Supplying War," in Feeding Mars: Logistics in Western Warfare from the Middle Ages to the Present, ed. John A. Lynn (Boulder: Westview Press, 1993), 17.

⁴ John Shy, "Logistical Crisis and the American Revolution," in Feeding Mars: Logistics in Western Warfare from the Middle Ages to the Present, ed. John A. Lynn (Boulder: Westview Press, 1993), 163.

⁵ James A. Huston, THE SINEWS OF WAR: ARMY LOGISTICS 1775-1953, (Washington D.C.: Office of the Chief of Military History, 1966.) 102.

⁶ Ibid, 103.

⁷ Ibid, 109.

⁸ Ibid, 181.

⁹ Ibid, 354.

¹⁰ Ibid, 372.

¹¹ Charles M. O'Connor, "Vietnam: How business fights the war by contract," *Business Week*, no. 1905 (5 March 1965):58-62.

¹² Lynn, 10.

¹³ Joe A. Fortner and Ron Jaeckle, "Institutionalizing Contractors on the Battlefield," *Army Logistician* 30, No. 6, (1998): 11.

¹⁴ Department of Defense, "Average Military Strength" available from <http://www.defenselink.mil/pubs/almanac.html>; Internet; accessed on 4 March 2002.

¹⁵ Donald H. Rumsfeld, Quadrennial Defense Review (Washington D.C., September 2001), 53.

¹⁶ John C. Deal, "Second Thoughts on Outsourcing for the Army," *Army*, Vol. 51, No. 5, May 2001: 22.

¹⁷ General Accounting Office, Results of A-76 Studies over the past 5 years (Washington D.C.:U.S. General Accounting Office, December 2000.), 4-5.

¹⁸ General Accounting Office, Competitive Sourcing Some Progress but Continuing Challenges Remain in Meeting Program Goals. (Washington D.C.: U.S. General Accounting Office), 9-18.

¹⁹ Larry Smith, "Commercial Logistics: Best Practices for the Revolution in Military Logistics," *Army Logistician* (January – February 1999):15.

²⁰ J. Michael Brower, "DOD Outsourcing and Privatization" available from <http://www.cgsc.army.mil/milrev/English/SepNov98/Brower.htm>;Internet; accessed on 2 October 2001.

²¹ Huston, 105.

²² Joint Vision 2020, 7.

²³ Department of the Army, Contractors on the Battlefield, Field Manual 3-100.21 Final Draft, (Deputy Chief of Staff for Doctrine, Headquarters Training and Doctrine Command, Fort Leavenworth, 8 November 2001), vii-ix.

²⁴ Ibid.

²⁵ Ibid.

²⁶ Ibid.

²⁷ Carl A. Buhler, When Contractors Deploy: A Guide for the Operational Commander, Research Paper (Newport Rhode Island, Naval War College, 8 February 2000) 14.

²⁸ Department of the Army, Contractor Support on the Battlefield, Field Manual (FM) 100-10-02 (Department of the Army Washington, D.C, 4 August 1999), 2-10.

²⁹ Charles R. Schrader, "Contractors on the Battlefield," AUSA Landpower Essay Series, No. 99-6, May 1999.

³⁰ Buhler, 13.

³¹ Richard G. Schenck, "Contractors: A Strategic Asset or Achilles Heel?" Strategic Research Project, (Carlisle, Pennsylvania, U.S. Army War College, 20 July 2001) 8.

³² Ibid.

³³ Tim Wynn, "Managing the Logistics Support Contract", available from <http://www.tac.usace.army.mil/news/wynn042000.html>;Internet;accessed on 2 October 2001.

³⁴ Buhler, 13.

³⁵ Steven J. Zamparelli, "Contractors on the Battlefield: What Have We Signed Up For?," Research Report, (Alabama, Maxwell Air Force Base, Air War College, March 1999)18.

³⁶ Ibid.

³⁷ Ibid, 22.

³⁸ Ibid, 5.

³⁹ Wayne Specht, "New Law Closes Civilians' Legal Loophole on Crimes Committed Abroad," Stars and Stripes, 25 June 2001.

⁴⁰ Ibid.

⁴¹ David R. Gallay and Charles L. Horne III, "LOGCAP Support in Operation Joint Endeavor: A Review and Analysis," (McLean, Virginia: Logistics Management Institute, September 1996) 27.

⁴² Major General B. D. Bates, "Joint Logistics," Lecture, Carlisle Barracks, PA, U.S. Army War College, 11 December 2001, cited with permission of Major General Bates.

⁴³ U.S. Army Corps of Engineers, Logistics Civil Augmentation Program Guide for Commanders, EP 500-1-7, (U.S. Army Corps of Engineers, 5 December 1994) 8.

⁴⁴ David L. Young, "Planning, The Key to Contractors on the Battlefield," Army Logistian 31 (Summer 1999): 10.

⁴⁵ General Accounting Office, Bosnia: Costs are Exceeding DOD's Estimate (Washington, D.C.:U.S. General Accounting Office, July 1996),1.

⁴⁶ Susan C. Foster, "Contractors on the Battlefield: Force Multipliers or Detractors? "Strategy Research Paper, (Carlisle Barracks: U.S. Army War College, 8 April 1998), 8.

⁴⁷ Zamparelli, 11.

⁴⁸ Zamparelli, 14.

⁴⁹ Logistics Management Institute, "Army Contractor and Civilian Maintenance, Supply Transportation Support during Operations Desert Shield and Desert Storm," (Mclean, Virginia: LMI) 1-2.

⁵⁰ Yves J. Fontaine, "Strategic Logistics for Intervention Forces," Parameters, No. 20, (Winter 1997-98): 12.

⁵¹ Shrader, 4.

⁵² Foster, 10.

⁵³ Nicholas J. Kolar Jr., "LOGCAP: Providing Vital Services to Soldiers," Engineer Magazine (October 2001) 5.

⁵⁴ Wynn, 4.

⁵⁵ Ibid.

⁵⁶ Zamparelli, 6.

⁵⁷ Wynn, 4.

⁵⁸ Kolar, 5.

⁵⁹ Gallay and Horne, 25-26

⁶⁰ Wynn, 5.

BIBLIOGRAPHY

- Bates, B. D. "Joint Logistics." Lecture. Carlisle Barracks, PA, U.S. Army War College, 11 December 2001. Cited with permission of Major General Bates.
- Brower, Michael J. "DOD Outsourcing and Privatization." Available from <<http://cgsc.army.mil/milrev/English/SepNov98/Brower.html>>. Internet. Accessed on 2 October 2001.
- Buhler, Carl A. When Contractors Deploy: A Guide for the Operational Commander. Strategy Research Project. Newport Rhode Island: U.S. Naval War College, 8 February 2000
- Clausewitz, Carl V. ON WAR. Princeton, NJ: Princeton University Press, 1976.
- Deal, John C. "Second Thoughts on Outsourcing for the Army." Army 51, no. 5 (May 2001):8-10.
- Department of the Army. Contractors on the Battlefield. Army Field Manual Final Draft 3-100.21. Fort Leavenworth: Chief of Staff for Training and Doctrine, 8 November 2001.
- Department of the Army. Contractor Support on the Battlefield. Army Field Manual 100-10-02. Fort Leavenworth: Chief of Staff for Training and Doctrine, 4 August 1999.
- Department of the Army. Logistics Civil Augmentation Program Guide for Commanders. Army Corps of Engineers Pamphlet EP 500-1-7. Fort Lee: Chief, Corps of Engineers, 5 December 1994.
- Department of Defense, "Average Military Strength." Available from <http://www.defenselink.mil/pubs/almanac.html>. Internet. Accessed on 4 March 2002.
- Fontaine, Yves J. Strategic Logistics for Intervention Forces. Parameters no. 20. (Winter 1997) 42-59.
- Fortner, Joseph A. "Contractors on the Battlefield." 11 February 1999. Available from <http://cascom.army.mil/rock/c_contractors_on_the_battlefield>. Internet. Accessed on 1 November 2001.
- Fortner, Joseph A. and Jaeckle, Ronald, "Institutionalizing Contractors on the Battlefield." Army Logistician 30, no. 6 (1998):11-12.
- Foster, Susan C. "Contractors on the Battlefield: Force Multipliers or Detractors?" Strategy Research Project. Carlisle Barracks: U.S. Army War College, 7 April 1998.
- Gallay, David R. and Horne, Charles L. "LOGCAP Support in Operation Joint Endeavor: A Review and Analysis." Mclean, VA: Logistics Management Institute, September 1996.
- Huston, James A. THE SINEWS OF WAR: ARMY LOGISTICS 1775-1953, Washington D.C.: Office of the Chief of Military History, 1966.

Kolar, Nicholas J. Jr. LOGCAP: Providing Vital Services to Soldiers. Available from <http://www.wood.army.mil/ENGRMAG/PB5971/logcap.htm>. Internet. Accessed on 2 October 2001.

Logistics Management Institute. "Army Contractor and Civilian Maintenance, Supply, Transportation Support during Operations Desert Shield and Desert Storm." (McLean VA: LMI Corp).

Lynn, John A. "The History of Logistics and Supplying War," In Feeding Mars: Logistics in Western Warfare from the Middle Ages to the Present, ed. John A. Lynn, 9-27. Boulder: Westview Press, 1993.

O'Connor, Charles M. "Vietnam: How business fights the war by contract." Business Week (no.1905) 5 March 1965.

Shrader, Charles R. "Contractors on the Battlefield." AUSA Land Power Series, no. 99-6.(May 1999)

Shy, John, "Logistical Crisis and the American Revolution," In Feeding Mars: Logistics in Western Warfare from the Middle Ages to Present, ed. John A. Lynn, 161-181. Boulder: Westview Press, 1987.

Shenck, Richard G. "Contractors: A Strategic Asset or Achilles Heel?" Strategy Research Project, Carlisle Barracks; U. S. Army War College. 20 July 2001.

Smith, Larry. "Commercial Logistics: Best Practices for the Revolution in Military Logistics." Army Logistician (January – February 1999).

Specht, Wayne, "New Law Closes Civilians' Legal Loophole on Crime Committed Abroad." Stars and Stripes, 25 June 2001, p. 2.

U. S. General Accounting Office. Bosnia: Costs Are Exceeding DOD's Estimate. Washington D.C.: U.S. General Accounting Office, July 1996.

U. S. General Accounting Office. Results of A-76 Studies over the past 5 years. Washington D.C.: U.S. General Accounting Office, December 2000.

U. S. General Accounting Office. Competitive Sourcing, Some progress but Continuing Challenges Remain in Meeting Program Goals. Washington D.C.: U.S. General Accounting Office.

U. S. Department of Defense. Quadrennial Defense Review. Washington D.C.: U.S. Department of Defense, November 2001.

U. S. Department of Defense. Joint Vision 2020. Washington D.C.: Joint Chiefs of Staff.

Wynn, Tim. Balkans Theater Managing the Logistics Support Contract; available from <<http://www.tac.usace.army.mil/news/wynn042000.html>>. Internet. Accessed on 24 October 2001.

Young, David L. "Planning the Key to Contractors on the Battlefield." Army Logistian 31 (Summer 1999): 10.

Zamparelli, Steven. Contractors on the Battlefield: What Have We Signed Up For? Air Force Journal of Logistics no. 23: Fall 1999.